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Leadership Styles in E-commerce Adoption

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Abstract. This paper presents the results of a study investigating leadership and leadership styles in e-commerce adoption in small and medium size enterprises. The results show that top management and CEO have a key role in small and medium size enterprises (SMEs) in developing a vision for e-commerce adoption and that the dominant leadership style is directive/consultative. Furthermore the study shows that e-commerce adoption is becoming a strategic process and in this process top management is taking into consideration both the organizational knowledge and the knowledge of external consultants.

INTRODUCTION

Technological development is impacting the business landscape by providing new ways and opportunities to conduct business. In the last decade e-commerce has especially created new possibilities to change ways of doing businesses or create new business models. In such a changing environment the role of the leader is becoming vital. "Leaders as opposed to managers are creating the visions and make the necessary plans and steps to keep their organizations competitive. In the past the role of managers was to organize, delegate and get the job done. Nowadays companies need leaders that can establish visions and can guide the company in turbulent times" (Cope and Waddell, 2001, p. 523). This is especially true for small and medium size enterprises (SMEs) which are believed to highly benefit from e-commerce (OECD, 2002). There is much disagreement about how to classify SMEs. In this article the definition of the Australian Bureau of Statistics (ABS) is adopted according to which a small and medium size business is any business employing less than 200 employees (www.abs.gov.au). Also different definitions of e-commerce can be found in the literature. In this study e-commerce is defined as the business activities

conducted using electronic data transmissions via the WWW and the focus is on business-to-business e-commerce in opposition to business-to-consumer e-commerce.

Most of the literature on SMEs' e-commerce adoption focuses on factors that affect the adoption decisions or factors that distinguish adopters from non adopters. These factors have mostly explained the decision to adopt according to environmental factors such as competitive pressure or suppliers' pressure (Thong, 1999); organizational characteristics such as size or employees information technology knowledge (Palvia and Palvia, 1999) and technological factors such as perceived benefits (e.g. Iacovou et al., 1995). More recently, studies are focusing on the strategic impact of e-commerce (e.g. Drew, 2003) or the impact of the perceived strategic value of e-commerce by managers in Chilean SMEs on the adoption decision (e.g. Grandon and Pearson, 2003).

The purpose of this paper is to investigate the role of leadership in e-commerce adoption. The basic research question is: "What is the role of leadership in e-commerce adoption in small and medium size enterprises?" This question is important because companies are increasingly shifting business goals from only focusing on profitability and bottom line to increase employees' and customer satisfaction as well as keep up with the competition. A survey conducted by Cope and Waddell (2001) about the main goals for adopting e-commerce in various industries shows that the major reasons for adopting e-commerce are creating or maintaining a competitive advantage, improving customer satisfaction and keeping pace with competition.

The article is structured as follows. The next section presents a literature review of ICT adoption frameworks in SMEs, while the following section discusses the role of leadership and presents the theoretical framework used in the paper. This is followed by a description of the research design, the data collection process, and the companies' background. The remainder of the paper presents the analysis, a discussion of the results, and finally the paper ends with a session presenting conclusions, limitations and suggestions for further research.

THEORETICAL BACKGROUND

A fundamental approach to studying the adoption of new technologies is the diffusion of innovations (Rogers, 1995). Organizational innovations can be defined as the development and implementation of products, technologies, systems or ideas that are new to the company (Rogers, 1995). Therefore e-commerce can be defined as a type of innovation. Prior studies in organizational innovation and use and diffusion of information technology suggest a number of factors that affect adoption and diffusion of information technology and e-

		-Organizational Environment (Competitiveness)
Mirchandani and Motwani (2001)	Electronic Commerce	-Top Management Support - Relative Perceived Advantage of e-commerce -Employees' IT knowledge -E-commerce Compatibility with the work of the company
<p>commerce within a company (e.g. In Kurniasih & Johnston, 2000; Chau & Tam, 1997; Premkumar & Ramamurthy, 1995; Grandon and Pearson, 2003). Even though the factors affecting ICT and e-commerce adoption have been grouped into different categories, a thorough literature review shows that they can be mainly categorized according to the three contexts of Tornatzky and Fleischer's (1990) model: the environmental context, the organizational context and the technological context.</p> <p>Here seven major studies focusing on ICT and e-commerce adoption in SMEs are reviewed and discussed according to the three contexts mentioned above. Table 1, which does not have the presumption of being comprehensive, briefly summarizes these studies.</p>		

Context	Factors	Authors
Environmental Context	Competitiveness Competitive Pressure Customer/Supplier Pressure Government Influence Quality of access to E-commerce Related Services Trade Associations Public Administration External Pressure Environmental Characteristics	Lertwongsatien and Wongpinunwatana (2003) Scupola (2003) Iacovou et al. (1995) Palvia & Palvia (1999) Kuan and Chau (2001) Thong (1999)
Organizational Context	Size Innovation Champion Top Management Support Existence of IT Department Employees IT Knowledge Organizational Readiness Owner Related Factors Organizational Characteristics CEO Characteristics	Lertwongsatien and Wongpinunwatana (2003) Scupola (2003) Mirchandani and Motwani (2001) Iacovou et al. (1995) Palvia & Palvia (1999) Kuan and Chau (2001) Thong (1999)
Technological Context	Perceived Benefits Perceived Compatibility Perceived Barriers Perception of IS Attributes	Lertwongsatien and Wongpinunwatana (2003) Scupola (2003) Mirchandani and Motwani (2001) Iacovou et al. (1995)

		Thong (1999)
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Table 2: Factors affecting adoption of e-commerce, EDI and IT/IS in SMEs.

External Environment

The external environment is the arena in which an organization conducts its business. Tornatzky and Fleischer (1990) distinguish three main groups of factors within this context: industry characteristics such as competition and customer supplier relationships, technology support infrastructure and government intervention (Tornatzky and Fleischer, 1990). Iacovou et al. (1995) found that external pressures were determinant in SMEs' EDI adoption. These pressures were divided into competitive pressure and imposition by trading partners. Kuan and Chau (2001) in a study to understand factors distinguishing EDI adopters from non adopters, proposed a perception-based small business EDI adoption model integrating Tornatzky and Fleischer's (1990) framework and the results of Iacovou et al. (1995)'s study. They found that the environmental context was important in EDI adoption and that adopters perceive a higher government pressure and a lower industry pressure than non adopters, while Thong (1999) in a study of IS adoption concluded, instead, that competitive pressure is very important.

Lertwongsatien and Wongpinunwatana (2003) in a study of the determinants of e-commerce adoption decisions in small and medium size enterprises in Thailand, distinguish three types of companies: adopters, prospectors and laggards. They find that the three types of organizations differ with regard to extent of competitiveness. Finally Scupola (2003) in an empirical study investigating the most important factors influencing e-commerce adoption found that several factors among which government role, public administration, trade associations and suppliers pressure had an important role in e-commerce adoption within the external environment.

Organizational Context

The organizational context represents the factors internal to an organization that influence an innovation adoption. These factors are a source of structures, processes and attributes that constrain or facilitate adoption (Tornatzky and Fleischer, 1990). Many factors belonging to this context have been found important in explaining information technology innovation and e-commerce adoption. For example, Iacovou et al. (1995) identified organizational readiness, operationalized as financial and technological resources of the firm as a major factor in SMEs' EDI adoption. Palvia and Palvia (1999), in a study of businesses with very few employees show that ICT satisfaction is very much influenced by business-related factors such as type of business, size, profitability, location and

by owner characteristics such as education and computing skills. The main conclusions of their study are that owner characteristics have a greater impact on ICT satisfaction, while other factors such as training and education represent reasons for dissatisfaction.

These results are also supported by Thong (1999) that showed that the CEO characteristics have a major importance in IS adoption and by Kuan and Chau (2001) that found perceived technical competence being more an obstacle for non adopters than adopter firms. In the specific case of e-commerce adoption, Mirchandani and Motwani (2001) include employees' IT knowledge and top management support as factors distinguishing small business adopters from non adopters, while Scupola (2003) in addition found that the innovation champion, financial resources, company size were also relevant factors. Finally, Lertwongsatien and Wongpinunwatana (2003) show that adopters, prospectors and laggards differ significantly on their size, extent of top management support and existence of the IT department.

Technological Context

The technological context represents the pool of technologies available to a firm for adoption, which can be both the technologies available on the market and the firms' current equipment. The decision to adopt a technology depends not only on what is available on the market, but also on how such technologies fit with the technologies that a firm already possesses (Tornatsky and Fleischer, 1990; Chau and Tam, 1997). Many studies have investigated the impact of the innovation characteristics on the innovation process. For example Iacovou et al. (1995) states that relative advantage (e.g. perceived benefits and barriers), compatibility (both technical and organizational) and trialability (e.g. pilot tests) are among the main attributes.

Lertwongsatien and Wongpinunwatana (2003) find that prospectors and adopters are significantly different from laggards in perceived benefits and perceived compatibility. Finally, while Mirchandani and Motwani (2001) found that e-commerce compatibility with the business the company is in and perception of its relative advantage are important factors, Scupola (2003) found that e-commerce barriers, e-commerce benefits and e-commerce related technologies are the most important technological factors influencing e-commerce adoption.

THE IMPORTANCE OF LEADERSHIP IN SMES' E-COMMERCE ADOPTION

As showed by the above literature review, many studies (e.g. Thong, 1999; Thong and Yap, 1996) have pointed out the importance of the organizational context in information technology innovation and within this context have

investigated the effects of the organizational characteristics and individual characteristics. Within the organizational characteristics, previous e-commerce adoption research has investigated size and existence of the IT department as showed in Table 1.

Within the individual characteristics, much attention has been focused on the characteristics of the CEO. The argument goes that he/she has a major role in the business, which is especially important in SMEs where the CEO is often also the owner and is responsible for the survival of the business (Thong and Yap, 1995). Examples of characteristics investigated are CEO's IT knowledge and attitude towards IT innovations. For example Thong (1999) explored the role of CEO's IT knowledge and innovativeness in IT adoption and found that the CEO is affecting both adoption and extent of adoption. However CEOs in small companies are often not especially knowledgeable about information technology, which can be a major barrier to adoption. Also Cragg and King (1993) found that usually the owner-manager of SMEs lacks IT knowledge and this also discourages other members in the firm to investigate IT opportunities. Finally previous literature (e.g. Thong, 1999; Thong and Yap, 1995) pointed out that the CEO is generally the single point of authority, usually does not share information with other organization's employees and suggest that the CEO is the only one with access to the information needed to identify new opportunities, therefore management support is crucial for innovation adoption. The role of CEO and top management becomes even more important considering that small and medium size businesses have limited slack resources to invest in information technology and e-commerce (e.g. Iacovou et al., 1995). Therefore the importance of focusing on the role of leadership in e-commerce adoption within the organizational context.

A Model to Investigate Leadership

The Dunphy and Stace (1990) model provides a comprehensive method to analyze different levels and degrees of change and leadership styles. By drawing on the theory of change management by Dunphy and Stace (1990) and the study conducted by Cope and Waddell (2001) about auditing of leadership styles in e-commerce adoption, I use the following conceptualization of leadership styles and types of organizational change to investigate e-commerce and leadership in this study:

1. Collaborative. This involves widespread employees' participation in important decisions about the organizations' future, and about the means of bringing about the organizational change.

2. Consultative. This style involves consultation with employees, primarily about the means of conducting the organizational change, with their possible limited involvement in setting goals of relevance to their expertise area or responsibility.
3. Directive. This leadership style involves the use of managerial authority and direction as the main form of decision making about the organization's future, and about the means of bringing about organizational change.
4. Coercive. This style of leadership involves managers/executives or outside parties forcing or imposing change on key groups in the organization (Dunphy and Stace, 1993, p. 6).

Also Dunphy and Stace (1990) identified four types of organizational change an organization can undertake as a response to different stimuli, including the external environment. Regarding e-commerce as an external stimulus they can be described as follows:

1. "Fine Tuning". Organizational change which is an ongoing process characterized by fine tuning occurring in different departments to prepare for electronic adoption and use. Personnel is being developed and trained to suit the organizational adoption of e-commerce and some groups are formed within the organization to focus on e-commerce.
2. Incremental Adjustment. Organizational change which is characterized by incremental adjustments to the changing environment. The emphasis is here shifted from traditional business to a new way of conducting business (e-business). Such change involves distinct modifications (but not radical change) to corporate business strategies, structures and management processes.
3. Modular transformation. Here organizational transformation is characterized by the major realignment of one or more department to embrace e-commerce. The process of radical change is focused on one of these subparts as for example introduction of significantly new process technologies affecting key departments or ways of conducting business.
4. Corporate Transformation. Organizational change which includes a radical transformation of the business strategies to include also e-commerce and many processes and procedures have been changed to accommodate e-commerce.

Even though these leadership styles and organizational transformation types were not developed originally by keeping the small and medium size enterprises in mind, the assumption is made here that the four leadership styles mentioned above can be of use to investigate leadership in SMEs. However it is clear that parts of the four transformational stages are mainly

characteristic of bigger companies. This is taken into consideration in the analysis.

RESEARCH APPROACH AND DATA COLLECTION

In order to investigate the role of leadership in e-commerce adoption in small and medium size businesses, the case study method (Yin, 2003) has been used. Yin (2003) defines a case study as “an empirical inquiry that investigates a contemporary phenomenon within its real-life context and relies on multiple sources of evidence (p. 13)”. By following Yin (2003), the case study method can be used in this study to corroborate existing research, learn the state of the art of the role of leadership in SMEs’ e-commerce adoption, understand the nature and complexity of such a phenomenon in a natural setting.

Data Collection and Research Design

The data collection includes face-to-face semi-structured, focused interviews, information provided on the company web sites, and other documents provided by the companies. The interviews were conducted with CEOs or managers that had a key role in the adoption and implementation of e-commerce. To increase reliability an interview protocol was used and a case study database was developed (Yin, 2003). The questions of the protocol were divided into two parts. Part one captured company background information such as the type of business, revenues, number of employees. Part two focused on gaining information about e-commerce adoption, web page sophistication, type and role of leadership in e-commerce adoption.

Triangulation has been achieved by visiting and analyzing each company web site before and after the interview and by analyzing annual reports and other material provided by the companies.

The questionnaire was pre-tested by asking a colleague at Queensland University of Technology to read and comment on it. Also minor revisions were made after the first interview. Each interview lasted between one and one and a half hour. All interviews were tape-recorded and transcribed. Notes were also taken during the interviews. Following Yin (2003) the data were analyzed by following the “general strategy of relying on theoretical orientation” of the case study. Specific analytic techniques included putting information into different arrays, making matrixes of categories and placing evidence within such categories (Yin, 2003; Miles and Huberman, 1994).

To increase validity the results were sent to the informants (Creswell, 1998), however only came back to the author with positive feedback.

Company Selection Process

The companies were selected on the basis of representativeness of the region industrial sectors and accessibility according to the following criteria:

1. The companies should have already implemented e-business or were planning to do so in the near future, thus being adopters or prospective adopters.
2. They should be registered companies, could be classified as SMEs according to the number of employees and should be located in the same geographical region to ensure that external factors such as government policy, availability of support services, education of the available workforce were the same.
3. The companies could belong to different business sectors including high-tech/knowledge intensive sectors as these businesses have been shown to be more advanced in their use of Internet technologies than firms in other business sectors (Drew, 2003). Here the assumption has been made that 1) a sample of companies belonging to different business sectors would lead to more variety in the data regarding leadership in e-commerce adoption than a sample of companies belonging to the same sector; 2) companies in the high tech/knowledge intensive sectors, being ahead of others in e-commerce adoption, could provide interesting insights for prospectors and laggards (Lertwongsatien and Wongpinunwatana 2003).

A research assistant at Queensland University of Technology, who in advance had been instructed about the objective of the study and the companies' selection criteria helped in contacting and selecting the sample companies. Due to the companies' wish, the company names are kept undisclosed.

COMPANIES BACKGROUND

The age of the firms ranged from 6 to 40 years. Even though there is a wide spreading among the companies with regard to the number of employees, the spreading is very small in terms of revenues, which are between 15 and 20 million Australian dollars. One company however did not provide any financial information. The firms had a wide range of experience with e-commerce. One company (A3) offered the capability to download software components from the web site, however it was not charging for it yet. The project was still at experimental stage, but the company was planning to charge for it in the future if it was a success. A2 offered online training and online customer support on the web site. They had traded products on the web site in the past, but it turned out to be a mistake mainly due to the complexity of their products. A2 has an Intranet which proved to be quite a useful tool for knowledge management and sharing. A summary of the companies' characteristics is provided in Table 3.

Firm	Business Type	Years in business	Number of employees	Leadership Style	Yearly revenues in AU\$	E-commerce Platform Facilities
A1	Site and facilities Management	40	35	Directive/consultative	16-17 Millions	Presently the web site provides info and contains a database of tenants. Were planning to implement a full e-commerce platform.
A2	Financial Service Software Consultant	20	140	Directive/consultative	19-20 Millions	Web site supports online customer support, online training, and online customer relationship management. Traded online in the past.
A3	Consulting	6	3	Directive/consultative	No Data	Possibility to download trial software from the web site for free. Plans to make clients paying for it in the future.
A4	Design and Manufacturing	32	80	Directive/consultative	15 Millions	It is planning to adopt a full e-commerce platform. There was at that time disagreement within top management about what e-commerce features to support.

Table 3. Characteristics of the companies

Company A1 is in the business of site and facilities management. It has existed since 1964, but it had been privatized only 2 years prior to the interview. The company has 35 employees, and yearly revenues of 15-16 millions Australian dollars. At the time of the interview, A1 had a web site from which it was possible to download company information and contained a database of tenants. However the company was investigating the possibility of implementing an advanced e-commerce platform in order to become a service provider to the tenants. The idea to adopt e-commerce came from the CEO/owner of the company.

The second company (A2) develops financial service software, and was established in 1983. It is privately owned by 4 people. The CEO owns 80 percent of the company and has been the one initiating the e-commerce project. It has an EDB department of 5 people, but they did not have any role in the decision to adopt e-commerce. A2 offers online customer support to its clients as well as online training. In the past they had traded online, but they had stopped doing so, mainly due to the nature of their products which are too complicated with a lot of ways they can be configured often depending on the customer business model. It might have helped if they had taken a more gradual approach to e-commerce by offering online few features at a time.

The third company (A3) is in consulting and serves SMEs, larger size companies and government departments, such as the department of education. It is possible to download some software application components from the web side for trial by the client companies, but the company does not charge for it yet. They plan to do so in the future, if it becomes a success.

The fourth company (A4) was established in 1971, and manufactures point of sale objects such as displays and illuminated signs. They designed and made the products in house. They regularly purchased office supplies from online catalogues as well as raw material and at the time of the interview had a very basic e-commerce platform. They were planning to develop more sophisticated e-commerce in the near future, but at that time there was disagreement in the top management about what e-commerce features to support.

ANALYSIS AND RESULTS

One result of this study is that leadership is important in e-commerce adoption. Another result is that the predominant form of leadership in SMEs' e-commerce adoption is the directive moving towards consultative type. The CEO and top management develop a vision of the potential benefits of e-commerce to

the company and subsequently they make a decision to adopt it. For example as the informant in A1 states:

"We have adopted Internet to enhance our own image, protect our company from an intellectual property point of view, we wanted to say we exist and this is what we want to do, to enhance our own branding and marketing; we wanted to be out there on the web, mostly for internal branding and marketing. ??

At that time (when they decided to adopt) we had some ideas about benefits, but we did not realize the extent of the benefits until when we started using it for some time (Financial Manager, A1"

However they consult with employees, and external consultant about what to do, what changes to be made and what feature to support. The employees are also involved, even though only to a limited extent, in setting goals of relevance to their expertise area or responsibility (A1, A2, A3, A4).

In all the four companies interviewed, top management considers e-commerce as a strategic innovation opportunity that could benefit or damage the company and as such it is carefully considered and discussed both internally to the company and with external consultants. For example, A2 believed that having been the first to adopt e-commerce had given them a competitive advantage over the competition. In A2 top management (the four people owning the company) had discussed e-commerce adoption and planning among themselves, with external consultants and company's employees. They were also monitoring e-commerce both for current benefits and future changes. As a manager puts it:

No .it is mainly the marketing department (3 people) that is responsible for Home page content and development and to make suggestions to the CEO and top management..... Employers also can make suggestions on web sites ... (Manager, A2)

In A1, initially the initiative had been taken by the CEO, who had been mainly showed a directive form of leadership, even though lately he was changing towards consultative.

It was the CIO (that decided to adopt e-commerce)... he had a lot of clients and then decided to go with Internet , see ...the management decides... Only now management starts listening to suggestions .. (Manager, A1)

However, there had been very much planning and discussion among the CEO, the Financial/ICT manager and external consultants had taken place when e-commerce had to be adopted. Finally, also in A4 the CEO and other top managers had had much discussion about future e-commerce plans, but they were disagreeing about its strategic impact and therefore about what to do.

There is big disagreement in management about what should be put in i (the web site). You are giving a lot of importance to the web page. ..(Manager, A4)

Therefore the leaders in small and medium size companies are seriously starting taking into considerations the employees' suggestions regarding e-commerce adoption and diffusion (A1, A2, A3, A4). In A2 the marketing department, which is made of two people, is responsible for the structure and content of the web page and to advise top management about what to do or what changes to make, even though it is always top management the last one deciding how the web page has to look like, what features it has to offer, what kind of improvements have to be made to the e-commerce platform, etc. However, even though formally the responsibility for e-commerce was given to the marketing department, in A2 top management was also very open to other employees' suggestions. For example they had an employee that on her own initiative started analyzing competitors' web sites and found out that they were more people oriented and user friendly than their own. Top management decided then to change their web site after her suggestion to be more user-friendly and easy to use and operate.

The CEO/owner of A3, even though it had been him taking the initiative and deciding to adopt e-commerce in his company, stated that he is very interested to listen to employees' suggestions regarding e-commerce usage and further e-commerce improvements.

The owner of A1 was very conservative, but was willing to listen to employees' suggestions as well. For example they had hired an employee who had good database and e-commerce skills, and that had influenced the CEO's decisions regarding further e-commerce planning and expansion.

Also in A4 the decision to adopt e-commerce had been made by the CEO. He was also starting opening up to employees' suggestions regarding ICT and e-commerce needs; however investments in the company's core business had priority respect to e-commerce investments. For example A4 explicitly say that if there is enough money in the budget for that year then they can use it on ICT/e-commerce, otherwise they have to wait for the coming year, despite the fact that they might have urgent needs to buy or fix some ICT/e-commerce software or equipment.

It was the CIO (that decided to get e-commerce) he had a lot of clients and then decided to go with Internet , see ...the management decides... Only now management starts listening to suggestions from the EDB department??(Manager, A4)

Regarding organizational change as a consequence of e-commerce adoption, it can be concluded that all the four organizations interviewed are mostly in a stage of "Fine Tuning". Organizational change due to e-commerce adoption is an ongoing process characterized by fine tuning occurring in different places or departments in the organization. Personnel is being developed and trained to suit the organizational adoption of e-commerce and some groups are formed within the organization to focus on e-commerce. For example, in A2 the two people in the marketing department had the responsibility of taking care of the structure and content of the web page and to advise top management about what to do or what changes to make. However some sign of "incremental adjustment" are also found. For example A2 offers online customer support to its clients as well as online training, which has changed some processes in the organization. Also A1 was investigating the possibility of implementing an advanced e-commerce platform in order to become a service provider to the tenants, which would have expanded the type of business the company was in to embrace e-business.

DISCUSSION OF FINDINGS

This study shows that the role of leadership is essential in e-commerce adoption. These results support the findings of other studies where top management support is important in e-commerce adoption (e.g. Lertwongsatien and Wongpinunwatana, 2003; Mirchandani and Motwani, 2001). However, if previous studies (e.g. Thong, 1999; Thong and Yap, 1995) show that the CEO is generally the single point of authority, usually does not share information with other organization's employees and is the only one with access to the information needed to identify new opportunities, this study shows that CEOs discuss e-commerce adoption with other managers, company's employees and consultants. Top management and the CEO are very much interested in the employees' knowledge, whether it is about customer needs as for example in A2, IT knowledge as for example in A1 or simply needs for some e-commerce or IT applications as in A3. CEOs and top management use such knowledge as input to their decision making. The leadership style in e-commerce adoption that emerges from this study is therefore consultative. This is in line with the results of the study conducted by Cope and Waddell (1994), where they by auditing leadership styles in e-commerce in Australia found out that by far the majority was consultative with very little collaborative and directive, but surprisingly more coercive. These results could be explained by the complexity of e-commerce technologies and by the lack of specialized e-commerce knowledge by the CEO. Furthermore this study shows that e-commerce adoption is becoming a planned, strategic decision which is not happening by chance as for example due to the son or a friend of the CEO/owner being acquainted with Internet as found in

other studies (e.g. Poon and Swatman, 1999) or by using an ad hoc approach as showed by Marshall et al. (2000). This could be due to the complexity of implementing e-commerce. At this advanced stage, which requires more than just having an Internet connection or a simple web page, adoption of e-commerce is an important decision and is very much thought and discussed. The study finds that companies are starting making an "informal" plan or strategy for e-commerce adoption as also found by Drew (2003). The importance of a strategic approach to e-commerce adoption is supported by the experience of A2, which had to reduce the e-commerce capabilities when it realized that their products were too complicated to be configured and sold on the web. Therefore also the importance of "fit" between the technology and the business the company is in, as also pointed out by Mirchandani and Motwani (2001). Also this study shows that the managers/owners are recognizing the importance of the knowledge generated within the company. New theories of strategic management are emphasizing knowledge and the dynamic aspects of organizational knowledge creation as important in increasing the firms' innovation capability and competitive advantage (E.g. Nonaka, 1994). These theories argue that while new knowledge is developed by individuals, management plays a critical role in articulating and applying this knowledge (Grant, 1996).

IMPLICATIONS FOR PRACTICE

The main implications for SMEs' managers and owners is that adoption of e-commerce offering more advanced features than just presentation of company's information on the web site for marketing purposes or use of e-mail, requires a type of leadership that is consultative, thus taking into consideration employees' knowledge and skills. Moreover, given the fact that adopting e-commerce implies the allocation of resources and investments that are more substantial than just establishing an Internet connection or developing and maintaining a simple static web page, e-commerce adoption requires strategic planning. This planning might involve several parties among which ICT experts or consultants to avoid making investments in equipment and software that might end up into failure or that does not support the company's type of products/services or strategy.

CONCLUSIONS AND LIMITATIONS

This study has investigated the role of leadership in e-commerce adoption in small and medium size enterprises. The main findings can be summarized as follows: top management and CEO are key determinants for e-commerce adoption; the leadership style is consultative; e-commerce adoption is becoming a planned or strategic process; top management is taking into consideration both

the organizational knowledge and the consultants' knowledge in the decision to adopt or further expand e-commerce.

The study presents some implications for employees' owners and managers that can be summarized as follows: adoption of e-commerce requires a consultative type of leadership that takes into consideration the company's employees as they might possess invaluable knowledge; e-commerce adoption requires strategic planning.

Finally, the study presents a number of limitations. First of all the number of sample companies is limited and belong to different business sectors among which high tech industries/knowledge intensive industries. Therefore it might be difficult to generalize the results from this study to specific industrial sectors. Second, all the sample companies were located in a metropolitan area. Therefore it might be difficult to generalize the results to regional areas, defined as geographical areas located outside metropolitan centres and major cities. Nevertheless, this research gives some interesting insights into the role of leadership in SMEs e-commerce adoption. The results of this study can be useful to researchers, owners and practicing managers of small and medium size enterprises wishing to adopt e-commerce.

Finally, the limitations of this study can also be considered as the starting point for further research. For example, the study could be replicated in service companies or regional areas, and further research could investigate the emergence of strategies or the role of organizational knowledge in e-commerce adoption in SMEs. Also a follow up survey to a large sample of SMEs could strengthen the results of this study.

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